

Pos 1	Pos 2	phi	p value	Angstroms	Correlations Between Specific Amino Acids			
					Pos 1	Pos 2	phi	p value
54	82	0.63	0.000000000	8.3	54V	82A	0.55	0.000000000
					54T	82A	0.21	0.000000000
					54M	82I	0.15	0.000135756
					54V	82T	0.15	0.000000752
					54V	82F	0.08	0.016188741
					54L	82I	0.05	0.576605143
					54L	82T	0.02	0.949740169
					54M	82A	0	0.749514927
					54T	82I	-0.01	0.576605143
					54M	82F	-0.01	0.451419686
					54M	82T	-0.02	0.721717946
					54L	82F	-0.02	0.754354928
					54T	82F	-0.02	0.754354928
					54T	82T	-0.02	0.949740169
					54L	82A	-0.05	0.184877820
54V	82I	-0.06	0.074308867					
32	47	0.51	0.000000000	3.9	32I	47V	0.52	0.000000000
73	90	0.47	0.000000000	8.9	73S	90M	0.38	0.000000000
					73T	90M	0.18	0.000000001
					73C	90M	0.1	0.000871217
35	36	0.45	0.000000000	1.3	35D	36I	0.36	0.000000000
					35G	36I	0.12	0.000066904
					35D	36V	0.12	0.000128788
					35D	36L	0.07	0.021771182
					35G	36L	-0.01	0.184784721
35G	36V	-0.01	0.348812426					
10	54	0.42	0.000000000	16.3	10I	54V	0.38	0.000000000
					10I	54T	0.14	0.000006892
					10F	54M	0.1	0.010583562
					10F	54L	0.07	0.103975337
					10V	54L	0.05	0.326219419
					10V	54V	0.04	0.271873445
					10I	54L	0	0.841526406
					10X	54M	-0.01	0.045724913
					10R	54L	-0.01	0.377880800
					10R	54M	-0.01	0.160129306
					10X	54L	-0.01	0.170813474
					10R	54T	-0.01	0.377880800
					10X	54T	-0.01	0.170813474
					10V	54M	-0.02	0.863089542
					10V	54T	-0.02	0.804571767
					10F	54T	-0.02	0.928468021
					10F	54V	-0.02	0.646137681
					10I	54M	-0.03	0.574458106
10R	54V	-0.03	0.551851278					
10X	54V	-0.04	0.415577862					
					20R	36I	0.4	0.000000000
					20M	36I	0.12	0.000125738
					20M	36V	0.11	0.001500116

20	36	0.41	0.000000000	3.2	20I	36I	0.06	0.035719320
					20T	36I	0.06	0.080114592
					20T	36L	0.05	0.523765443
					20R	36V	0.01	0.984370473
					20M	36L	-0.02	0.682070094
					20T	36V	-0.02	0.754454643
					20I	36L	-0.02	0.825653451
					20I	36V	-0.03	0.584025232
					20R	36L	-0.03	0.623690349
					30	88	0.40	0.000000000
30N	88S	-0.05	0.176853412					
71	90	0.38	0.000000000	6.3	71V	90M	0.3	0.000000000
					71I	90M	0.1	0.000871217
					71T	90M	0.1	0.000635201
10	71	0.37	0.000000000	15.1	10I	71V	0.32	0.000000000
					10I	71I	0.1	0.001549450
					10F	71I	0.07	0.124332537
					10F	71V	0.05	0.101222468
					10R	71V	0.03	0.566174781
					10R	71T	0.02	0.770144403
					10I	71T	0.02	0.654075548
					10V	71V	0.01	0.921028131
					10X	71V	0	0.738507418
					10R	71I	-0.01	0.405629409
					10F	71T	-0.01	0.951187461
					10X	71I	-0.01	0.189929784
					10V	71T	-0.01	0.959730350
					10V	71I	-0.03	0.769953628
					10X	71T	-0.03	0.801473195
10	90	0.35	0.000000000	10.1	10I	90M	0.27	0.000000000
					10V	90M	0.08	0.005760539
					10R	90M	0.03	0.439569708
					10F	90M	0.01	0.849060918
					10X	90M	0.01	0.978418662
10	82	0.35	0.000000000	4.8	10I	82A	0.32	0.000000000
					10R	82T	0.25	0.000000000
					10I	82F	0.08	0.008211061
					10I	82T	0.03	0.319572873
					10F	82T	0.02	0.743872314
					10F	82I	0.02	0.996245170
					10V	82I	0.01	0.737511351
					10F	82A	0.01	0.811539960
					10V	82A	0.01	0.761863593
					10V	82T	0	0.793746270
					10V	82F	0	0.689914435
					10R	82F	-0.01	0.597698156
					10X	82I	-0.01	0.208959611
					10X	82T	-0.01	0.585106214
					10R	82I	-0.01	0.432475236
10X	82F	-0.01	0.335906992					
10F	82F	-0.02	0.814769919					
10X	82A	-0.02	0.906716599					

					10I	82I	-0.04	0.296839148
					10R	82A	-0.05	0.115192156
10	46	0.35	0.000000000	17.7	10I	46I	0.16	0.000000080
					10I	46L	0.15	0.000000158
					10V	46I	0.11	0.000148038
					10R	46I	0.08	0.022363886
					10F	46I	0.08	0.011332153
					10R	46L	0.08	0.020496833
					10I	46V	0.04	0.272146375
					10V	46L	0.04	0.270958382
					10X	46L	0.01	0.826225359
					10F	46L	0	0.885575682
					10X	46V	-0.01	0.011188374
					10V	46V	-0.01	0.635640384
					10F	46V	-0.01	0.403471557
					10R	46V	-0.01	0.065771328
					10X	46I	-0.04	0.401518327
54	71	0.34	0.000000000	20.4	54V	71V	0.32	0.000000000
					54T	71V	0.13	0.000022908
					54L	71V	0.1	0.001714261
					54M	71I	0.07	0.281121820
					54V	71I	0.05	0.167110802
					54M	71V	0.01	0.886385502
					54L	71I	-0.01	0.546963796
					54T	71I	-0.01	0.546963796
					54M	71T	-0.03	0.656487051
					54L	71T	-0.04	0.356964832
					54T	71T	-0.04	0.356964832
					54V	71T	-0.07	0.027180259
77	93	0.31	0.000000000	17.6	77I	93L	0.3	0.000000000
					77I	93M	0.01	0.988568682
10	84	0.30	0.000000000	7.8	10I	84V	0.28	0.000000000
					10F	84V	0.05	0.127859182
					10X	84V	0.03	0.526090805
					10R	84V	-0.01	0.933710000
					10V	84V	-0.03	0.489151920
84	90	0.30	0.000000000	7.6	84V	90M	0.29	0.000000000
48	54	0.29	0.000000000	5	48V	54T	0.44	0.000000000
					48V	54V	0.18	0.000000002
					48V	54M	-0.02	0.995288448
					48V	54L	-0.03	0.664655269
					12E	19I	0.26	0.000000000
					12S	19I	0.13	0.000015405
					12K	19Q	0.13	0.028362827
					12I	19V	0.12	0.039473361
					12K	19I	0.12	0.000562671
					12S	19T	0.11	0.003636152
					12S	19Q	0.11	0.003636152
					12K	19V	0.11	0.065771328
					12S	19V	0.1	0.016899818
					12A	19I	0.07	0.047700938
					12P	19I	0.04	0.413116833

12	19	0.29	0.000000000	4.2	12X	19T	-0.01	0.014730739
					12E	19T	-0.01	0.028362827
					12E	19V	-0.01	0.065771328
					12X	19V	-0.01	0.039473361
					12P	19T	-0.01	0.411889654
					12P	19V	-0.01	0.554201954
					12A	19Q	-0.01	0.160129306
					12A	19T	-0.01	0.160129306
					12E	19Q	-0.01	0.028362827
					12A	19V	-0.01	0.257788024
					12I	19Q	-0.01	0.014730739
					12X	19Q	-0.01	0.014730739
					12K	19T	-0.01	0.028362827
					12I	19T	-0.01	0.014730739
					12P	19Q	-0.01	0.411889654
					12I	19I	-0.02	0.763708727
12X	19I	-0.02	0.763708727					
73	84	0.28	0.000000000	10.5	73S	84V	0.23	0.000000000
					73T	84V	0.1	0.001284730
					73C	84V	0.08	0.019952729
24	46	0.27	0.000000000	18.8	24I	46L	0.2	0.000000000
					24I	46I	0.16	0.000000061
					24I	46V	0.03	0.832626849
10	73	0.27	0.000000000	18.9	10I	73S	0.18	0.000000001
					10I	73T	0.14	0.000005020
					10I	73C	0.07	0.031378101
					10R	73C	0.06	0.405629409
					10V	73T	0.06	0.144809020
					10R	73S	0.02	0.737788991
					10F	73C	0.02	0.963322856
					10F	73S	0.01	0.898849088
					10X	73S	0.01	0.821193924
					10V	73S	0	0.893529856
					10X	73C	-0.01	0.189929784
					10X	73T	-0.01	0.318617358
					10R	73T	-0.01	0.576286653
					10F	73T	-0.02	0.838133763
10V	73C	-0.03	0.769953628					
71	82	0.26	0.000000000	16.5	71V	82A	0.27	0.000000000
					71V	82T	0.11	0.000181710
					71T	82T	0.03	0.493717866
					71T	82I	0.03	0.577699042
					71I	82T	0.02	0.914742658
					71I	82A	0.02	0.755148084
					71T	82F	-0.01	0.997817406
					71I	82I	-0.01	0.608536398
					71V	82I	-0.01	0.955036927
					71I	82F	-0.02	0.788286784
					71V	82F	-0.04	0.187489892
					71T	82A	-0.07	0.022446829
24	82	0.26	0.000000000	7.5	24I	82A	0.28	0.000000000
					24I	82T	0.06	0.062217169

24	52	0.26	0.000000000	7.3	24I	82F	-0.01	0.958391777
					24I	82I	-0.03	0.539826263
35	37	0.26	0.000000000	4.6	35D	37D	0.18	0.000000000
					35D	37E	0.17	0.000000005
					35D	37S	0.06	0.064533733
					35G	37E	0.05	0.524862040
					35D	37A	0.04	0.355463141
					35D	37T	0.03	0.310086592
					35D	37H	0.02	0.652359941
					35G	37S	0	0.670867417
					35G	37H	-0.01	0.184784721
					35G	37D	-0.01	0.790332089
					35G	37T	-0.01	0.607333425
					35G	37C	-0.01	0.111402868
					35G	37A	-0.01	0.065882593
					35D	37C	-0.04	0.327934089
					24	54	0.26	0.000000000
24I	54L	0	0.603214111					
24I	54M	-0.02	0.931162441					
24I	54T	-0.03	0.603214111					
36	62	0.26	0.000000000	7.3	36I	62V	0.21	0.000000000
					36L	62V	0.1	0.000889454
					36V	62V	0.04	0.251512833
48	82	0.25	0.000000000	7.6	48V	82A	0.27	0.000000000
					48V	82T	0.01	0.919653254
					48V	82I	-0.03	0.599784513
					48V	82F	-0.04	0.428920211
71	84	0.25	0.000000000	11	71V	84V	0.23	0.000000000
					71I	84V	0.12	0.000166465
					71T	84V	0	0.971741226
46	82	0.25	0.000000000	14.1	46L	82A	0.28	0.000000000
					46I	82T	0.1	0.001188207
					46V	82A	0.07	0.041821180
					46I	82F	0.07	0.020334031
					46I	82A	0.03	0.407327028
					46I	82I	0.02	0.570925891
					46L	82T	0.01	0.799012788
					46V	82I	-0.01	0.159611385
					46V	82F	-0.01	0.272265838
					46V	82T	-0.01	0.505201778
					46L	82F	-0.01	0.942243386
					46L	82I	-0.04	0.323352576
63	90	0.23	0.000000000	11.4	63P	90M	0.31	0.000000000
					63C	90M	-0.02	0.563586303
					63Q	90M	-0.03	0.398958257
					63V	90M	-0.03	0.443403226
					63H	90M	-0.05	0.098488542
					63T	90M	-0.06	0.042399216
					63A	90M	-0.08	0.008468734
					63S	90M	-0.1	0.000863212
20	90	0.22	0.000000000	12.9	20I	90M	0.19	0.000000000
					20M	90M	0.09	0.004413398

20	90	0.22	0.000000000	12.9	20R	90M	0.08	0.009068145
					20T	90M	0.03	0.492407630
90	93	0.22	0.000000000	3.3	90M	93L	0.21	0.000000000
					90M	93M	0.03	0.488349689
10	93	0.22	0.000000000	10.6	10I	93L	0.2	0.000000000
					10R	93L	0.1	0.001811025
					10I	93M	0.06	0.122544595
					10X	93L	0.01	0.982114847
					10V	93L	0.01	0.773109849
					10X	93M	0	0.004929219
					10F	93M	-0.01	0.322029420
					10R	93M	-0.01	0.039473361
					10V	93M	-0.01	0.538714125
					10F	93L	-0.03	0.314014998
46	55	0.22	0.000000000	3.8	46I	55R	0.15	0.000000475
					46L	55R	0.12	0.000089771
					46V	55R	-0.01	0.375891227
12	14	0.22	0.000000000	4.4	12P	14R	0.31	0.000000000
					12S	14R	0.05	0.186782098
					12A	14R	0.03	0.671313419
					12X	14R	0.02	0.938231199
					12K	14R	-0.02	0.953742010
					12E	14R	-0.02	0.953742010
					12I	14R	-0.02	0.938231199
10	24	0.22	0.000000000	5	10I	24I	0.22	0.000000000
					10R	24I	0.01	0.764478406
					10F	24I	0	0.787600160
					10V	24I	-0.01	0.942708980
					10X	24I	-0.02	0.922036762
30	75	0.22	0.000000000	6.7	30N	75I	0.22	0.000000000
20	54	0.22	0.000000000	14.5	20R	54V	0.24	0.000000000
					20R	54T	0.1	0.001410648
					20I	54M	0.07	0.119591415
					20M	54V	0.07	0.033516972
					20T	54M	0.06	0.348812426
					20T	54L	0.04	0.632355494
					20I	54L	0.04	0.448215682
					20I	54V	0.02	0.476009720
					20R	54L	0	0.759508226
					20T	54T	-0.01	0.632355494
					20M	54M	-0.01	0.489039185
					20M	54T	-0.02	0.797412597
					20M	54L	-0.02	0.797412597
					20R	54M	-0.02	0.833068796
					20I	54T	-0.03	0.707277467
					20T	54V	-0.03	0.440909957
60	61	0.21	0.000000000	1.3	60E	61E	0.24	0.000000000
					60E	61H	0.03	0.829095267
					60E	61N	-0.02	0.973856585
10	48	0.21	0.000000000	13.3	10I	48V	0.22	0.000000000
					10V	48V	0.02	0.773434767
					10X	48V	-0.02	0.858753382

					10R	48V	-0.02	0.828131797
					10F	48V	-0.04	0.288186096
71	73	0.21	0.000000000	4.1	71V	73S	0.27	0.000000000
					71I	73T	0.24	0.000000000
					71V	73T	0.02	0.554974727
					71I	73S	0.01	0.906512738
					71I	73C	-0.01	0.578426883
					71T	73S	-0.01	0.902524774
					71T	73C	-0.04	0.329380042
					71T	73T	-0.05	0.192291750
					71V	73C	-0.06	0.055482005
62	73	0.20	0.000000000	2.9	62V	73S	0.19	0.000000000
					62V	73C	0.09	0.005287576
					62V	73T	-0.02	0.693242747
79	84	0.20	0.000000000	8.2	79A	84V	0.16	0.000000345
10	63	0.19	0.000000000	16.6	10I	63P	0.12	0.000062320
					10X	63H	0.09	0.170813474
					10V	63P	0.07	0.030947053
					10I	63T	0.07	0.030435310
					10X	63S	0.05	0.519877474
					10I	63V	0.05	0.129988421
					10F	63Q	0.05	0.291841267
					10I	63C	0.04	0.228059266
					10R	63P	0.04	0.211733733
					10R	63S	0.03	0.812432238
					10V	63A	0.03	0.473924920
					10F	63C	0.02	0.972583872
					10V	63T	0.01	0.707029746
					10F	63A	0	0.625561890
					10V	63Q	0	0.651870321
					10F	63S	0	0.625561890
					10I	63Q	0	0.889603405
					10R	63Q	-0.01	0.576286653
					10R	63T	-0.01	0.458443951
					10R	63V	-0.01	0.095595492
					10F	63V	-0.01	0.477750898
					10X	63A	-0.01	0.519877474
					10X	63C	-0.01	0.227837929
					10X	63T	-0.01	0.227837929
					10X	63V	-0.01	0.020292860
					10R	63C	-0.01	0.458443951
					10X	63Q	-0.01	0.318617358
					10R	63H	-0.01	0.377880800
					10I	63A	-0.02	0.702136642
					10F	63H	-0.02	0.928468021
					10R	63A	-0.02	0.812432238
					10F	63T	-0.02	0.972583872
					10V	63H	-0.02	0.804571767
					10V	63V	-0.02	0.720582146
					10X	63P	-0.02	0.682323563
					10I	63H	-0.03	0.470403696
					10V	63C	-0.03	0.707029746

					10I	63S	-0.04	0.282457087
					10V	63S	-0.04	0.360370846
					10F	63P	-0.04	0.293990140
10	20	0.19	0.000000000	7.5	10I	20R	0.15	0.000000639
					10V	20T	0.1	0.003865236
					10I	20M	0.08	0.007992579
					10X	20T	0.08	0.246515473
					10I	20I	0.07	0.016959242
					10F	20I	0.07	0.032162259
					10V	20R	0.05	0.181462646
					10V	20M	0.02	0.763489249
					10F	20T	0.02	0.943007016
					10R	20I	0.01	0.871876829
					10R	20M	-0.01	0.638629873
					10R	20T	-0.01	0.483566555
					10X	20M	-0.01	0.369555449
					10X	20I	-0.02	0.815832115
					10X	20R	-0.02	0.980292118
					10F	20M	-0.03	0.770909821
					10R	20R	-0.03	0.668267438
					10V	20I	-0.03	0.413080583
					10F	20R	-0.03	0.501265714
					10I	20T	-0.04	0.182088853
53	54	0.19	0.000000000	1.3	53L	54V	0.19	0.000000000
					53Y	54T	0.11	0.085067411
					53L	54M	0.03	0.747507105
					53Y	54V	0.03	0.540654790
					53L	54L	0.02	0.922840723
					53Y	54M	-0.01	0.014730739
					53Y	54L	-0.01	0.085067411
					53L	54T	-0.02	0.922840723
32	46	0.19	0.000000000	9.1	32I	46I	0.21	0.000000000
					32I	46L	0	0.887263313
					32I	46V	-0.01	0.594754668
10	62	0.19	0.000000000	18	10I	62V	0.15	0.000000276
					10V	62V	0.05	0.075816321
					10X	62V	0.04	0.268742582
					10R	62V	0.02	0.611341504
					10F	62V	0	0.987797846
73	77	0.19	0.000000000	9.5	73S	77I	0.14	0.000002948
					73T	77I	0.09	0.004058272
					73C	77I	0.04	0.190459972
92	95	0.19	0.000000013	5.7	92R	95F	0.2	0.000000274
					92K	95F	0.05	0.483748655
71	93	0.19	0.000000000	3.9	71V	93L	0.14	0.000001442
					71V	93M	0.1	0.003309716
					71I	93L	0.08	0.006430128
					71T	93L	0.01	0.831997850
					71I	93M	-0.01	0.097783867
					71T	93M	-0.02	0.999031901
46	90	0.18	0.000000001	18.1	46I	90M	0.18	0.000000001
					46L	90M	0.04	0.160062655

					46V	90M	-0.03	0.599078156
48	74	0.18	0.000000003	13.2	48V	74S	0.18	0.000000001
					48V	74A	0.13	0.000145473
					48V	74P	-0.03	0.700793045
					33F	34Q	0.15	0.000008847
33	34	0.18	0.000000013	1.3	33F	34D	0.14	0.000315440
					33I	34D	-0.01	0.205281201
					33V	34D	-0.01	0.021764573
					33I	34Q	-0.01	0.451419686
					33V	34Q	-0.01	0.111402868
62	90	0.18	0.000000002	10.5	62V	90M	0.17	0.000000003
15	20	0.17	0.000000004	4	15V	20T	0.15	0.000001230
					15V	20R	0.1	0.000514945
					15V	20M	0.09	0.002272917
					15V	20I	0.02	0.587030716
33	39	0.17	0.000000016	9.9	33I	39Q	0.19	0.000000038
					33F	39S	0.12	0.000847102
					33V	39S	0.08	0.247102919
					33F	39Q	0.04	0.637783233
					33I	39S	0.04	0.680632407
					33V	39Q	-0.01	0.111402868
63	93	0.17	0.000000005	9.5	63P	93L	0.16	0.000000059
					63V	93L	0.08	0.019033198
					63P	93M	0.04	0.353621470
					63C	93L	0.03	0.430685602
					63T	93L	0	0.861364228
					63V	93M	0	0.004929219
					63H	93M	-0.01	0.085067411
					63A	93M	-0.01	0.358344581
					63C	93M	-0.01	0.124072638
					63T	93M	-0.01	0.124072638
					63H	93L	-0.01	0.883704423
					63Q	93M	-0.01	0.191759696
					63S	93M	-0.01	0.358344581
					63A	93L	-0.02	0.517043665
					63Q	93L	-0.02	0.615945784
63S	93L	-0.03	0.319533747					
24	89	0.17	0.000000020	7.5	24I	89M	0.13	0.000075504
					24I	89V	0.11	0.000981922
					24I	89I	0.04	0.728504736
62	93	0.17	0.000000011	10.1	62V	93L	0.17	0.000000010
					62V	93M	-0.01	0.970451016
20	71	0.17	0.000000023	13.1	20I	71I	0.13	0.000068800
					20R	71V	0.09	0.001634610
					20I	71V	0.08	0.008914816
					20M	71V	0.06	0.060810883
					20T	71V	0.04	0.216732092
					20R	71I	0.02	0.819539735
					20M	71T	0.02	0.601574273
					20I	71T	0.01	0.962295529
					20R	71T	0	0.880203845
20T	71I	-0.02	0.665052699					

					20M	71I	-0.02	0.831656635
					20T	71T	-0.02	0.708724163
63	71	0.17	0.000000028	3.3	63P	71V	0.13	0.000014675
					63P	71T	0.11	0.000178829
					63T	71T	0.05	0.216322685
					63P	71I	0.04	0.198076616
					63C	71V	0.02	0.682918596
					63V	71T	0.01	0.801473195
					63A	71V	0.01	0.878920096
					63C	71I	-0.01	0.637383328
					63T	71I	-0.01	0.637383328
					63H	71I	-0.01	0.546963796
					63S	71V	-0.01	0.832036470
					63V	71I	-0.01	0.189929784
					63S	71I	-0.02	0.987953113
					63Q	71V	-0.02	0.756733599
					63A	71I	-0.02	0.987953113
					63Q	71I	-0.02	0.765440786
					63S	71T	-0.03	0.506155046
					63V	71V	-0.03	0.621522947
					63A	71T	-0.04	0.221838462
					63H	71T	-0.04	0.356964832
63T	71V	-0.04	0.268806623					
63C	71T	-0.04	0.281319636					
63Q	71T	-0.05	0.192291750					
63H	71V	-0.06	0.070503189					
46	93	0.16	0.000000025	22.7	46V	93M	0.18	0.002200207
					46I	93L	0.17	0.000000003
					46L	93L	0.01	0.859505708
					46I	93M	0	0.584001079
					46L	93M	-0.02	0.974363830
					46V	93L	-0.03	0.569732408
20	35	0.16	0.000000023	5.7	20R	35D	0.19	0.000000000
					20I	35G	0.07	0.119591415
					20T	35G	0.06	0.348812426
					20M	35G	0.05	0.489039185
					20T	35D	0.02	0.726246393
					20M	35D	0.01	0.771796407
					20I	35D	-0.01	0.767344585
					20R	35G	-0.02	0.833068796
20	73	0.16	0.000000042	13.6	20I	73S	0.2	0.000000000
					20I	73C	0.13	0.000068800
					20I	73T	0.07	0.036346964
					20T	73S	0.07	0.049996641
					20M	73S	0.04	0.212624196
					20R	73T	0.01	0.829804536
					20R	73C	-0.01	0.819539735
					20M	73T	-0.02	0.970826798
					20T	73T	-0.02	0.857098427
					20T	73C	-0.02	0.665052699
					20M	73C	-0.02	0.831656635
					20R	73S	-0.03	0.398472386

62	63	0.16	0.000000050	1.3	62V	63H	0.09	0.002355133
					62V	63P	0.08	0.005384737
					62V	63S	0.07	0.026917493
					62V	63V	0.02	0.775906849
					62V	63Q	0.02	0.617868387
					62V	63A	0	0.966045032
					62V	63C	-0.01	0.862793241
					62V	63T	-0.01	0.862793241
20	62	0.16	0.000000056	9.9	20R	62V	0.13	0.000012550
					20M	62V	0.04	0.178067177
					20T	62V	0.04	0.251512833
					20I	62V	0.03	0.289009081
36	54	0.16	0.000000088	11.6	36I	54V	0.16	0.000000050
					36I	54T	0.06	0.049244033
					36V	54V	0.04	0.344548566
					36L	54V	0.01	0.999541873
					36L	54T	-0.01	0.414741851
					36V	54L	-0.01	0.632355494
					36V	54T	-0.01	0.632355494
					36V	54M	-0.01	0.348812426
					36L	54L	-0.01	0.414741851
					36L	54M	-0.01	0.184784721
					36I	54L	-0.03	0.358782620
					36I	54M	-0.03	0.538953960
53	82	0.16	0.000000101	10.8	53L	82A	0.16	0.000000031
					53Y	82A	0.03	0.722305980
					53L	82T	0.01	1.000000000
					53Y	82F	-0.01	0.205281201
					53Y	82I	-0.01	0.110812838
					53Y	82T	-0.01	0.415750632
					53L	82I	-0.02	0.854967606
					53L	82F	-0.03	0.668831351
46	58	0.16	0.000000124	7.4	46L	58E	0.18	0.000000004
					46I	58E	0.06	0.062859466
					46V	58E	-0.01	0.528645183
46	76	0.16	0.000000316	6.5	46I	76V	0.17	0.000000027
					46L	76V	0.02	0.809184535
					46V	76V	-0.01	0.080288631
46	54	0.15	0.000000196	3.3	46L	54V	0.23	0.000000000
					46V	54T	0.09	0.127091674
					46I	54M	0.03	0.542242045
					46V	54V	0.03	0.719586475
					46L	54L	0.01	0.977851759
					46L	54M	0	0.680669617
					46I	54L	0	0.827707885
					46V	54M	-0.01	0.028362827
					46I	54V	-0.01	0.820951003
					46L	54T	-0.01	0.977851759
					46V	54L	-0.01	0.127091674
					46I	54T	-0.02	0.678323346
					46L	71V	0.15	0.000000105
					46V	71I	0.09	0.143291653

46	71	0.15	0.000000320	21.1	46I	71V	0.06	0.046806430
					46I	71I	0.03	0.481472169
					46V	71V	0.01	0.790679645
					46I	71T	0	0.954395138
					46L	71I	-0.01	0.915240768
					46V	71T	-0.02	0.892466224
					46L	71T	-0.03	0.461388300
13	88	0.15	0.000000217	11	13V	88D	0.12	0.000081761
					13V	88S	0.07	0.027776342
13	33	0.15	0.000000242	4.1	13V	33F	0.13	0.000011531
					13V	33I	0.08	0.009033115
					13V	33V	0	0.798180508
16	39	0.15	0.000002280	6.2	16E	39S	0.22	0.000000000
					16A	39Q	-0.01	0.087999930
					16A	39S	-0.01	0.209336563
					16E	39Q	-0.01	0.391376936
46	84	0.15	0.000000452	12.3	46I	84V	0.18	0.000000001
					46V	84V	0.01	0.718957293
					46L	84V	-0.01	0.730692146
33	83	0.15	0.000007381	3.4	33F	83D	0.23	0.000000000
					33I	83D	-0.01	0.395629285
					33V	83D	-0.01	0.085453759
35	57	0.15	0.000000376	2.5	35D	57K	0.13	0.000004277
					35G	57K	0.04	0.427502315
53	71	0.15	0.000000864	24.3	53L	71V	0.18	0.000000001
					53Y	71V	0.04	0.326729262
					53L	71I	0.01	0.887866604
					53Y	71I	-0.01	0.097783867
					53L	71T	-0.02	0.647497843
					53Y	71T	-0.02	0.999031901
10	89	0.15	0.000000931	13.7	10F	89M	0.1	0.007342201
					10I	89V	0.1	0.002206892
					10I	89M	0.06	0.052558824
					10I	89I	0.06	0.122544595
					10V	89I	0.05	0.538714125
					10F	89V	0.03	0.764961533
					10V	89V	0.02	0.970639917
					10X	89I	0	0.004929219
					10F	89I	-0.01	0.322029420
					10R	89M	-0.01	0.483566555
					10R	89V	-0.01	0.257788024
					10X	89M	-0.01	0.246515473
					10X	89V	-0.01	0.095595492
					10R	89I	-0.01	0.039473361
10V	89M	-0.03	0.678324152					
33	73	0.15	0.000001238	8.9	33I	73S	0.09	0.005199714
					33F	73S	0.06	0.083465944
					33F	73C	0.06	0.145732901
					33F	73T	0.05	0.328290762
					33I	73C	0.03	0.788286784
					33V	73S	0.03	0.565911730
33V	73T	-0.01	0.483201784					

					33V	73C	-0.01	0.324450522
					33I	73T	-0.02	0.984851258
10	58	0.14	0.000001651	21	10I	58E	0.13	0.000005119
					10V	58E	0.04	0.238622160
					10F	58E	-0.01	0.788884113
					10X	58E	-0.01	0.609611712
					10R	58E	-0.02	0.911095992
67	69	0.14	0.000007614	2.9	67F	69R	0.33	0.000000000
					67S	69K	0.12	0.001540543
					67Y	69R	0	0.002200207
					67Y	69K	-0.01	0.192313162
					67Y	69Q	-0.01	0.272265838
					67Y	69Y	-0.01	0.159611385
					67F	69K	-0.01	0.246515473
					67F	69Y	-0.01	0.208959611
					67F	69Q	-0.01	0.335906992
					67S	69Q	-0.01	0.552150228
					67S	69Y	-0.01	0.391770888
					67S	69R	-0.01	0.030064789
30	36	0.14	0.000003381	13.2	30N	36V	0.12	0.000216313
					30N	36I	0.1	0.001279598
					30N	36L	0	0.748871920
11	84	0.14	0.000010909	8.3	11I	84V	0.13	0.000028313
46	89	0.14	0.000005473	16.1	46I	89V	0.1	0.002585441
					46L	89M	0.09	0.006034539
					46L	89V	0.05	0.183061477
					46I	89I	0.03	0.562839261
					46L	89I	0.02	0.974363830
					46I	89M	0.02	0.753101051
					46V	89I	0	0.002200207
					46V	89V	-0.01	0.065771328
					46V	89M	-0.01	0.192313162
53	60	0.14	0.000009011	17.1	53L	60E	0.16	0.000000074
					53Y	60E	-0.02	0.829095267
46	73	0.13	0.000008866	15.8	46I	73T	0.11	0.000456128
					46I	73C	0.1	0.001583131
					46I	73S	0.09	0.001589627
					46V	73C	-0.01	0.143291653
					46L	73C	-0.01	0.915240768
					46L	73T	-0.01	0.887866035
					46V	73T	-0.01	0.256603596
					46V	73S	-0.02	0.912249170
					46L	73S	-0.03	0.342284193
33	53	0.13	0.000015993	12.8	33I	53L	0.07	0.080136186
					33F	53L	0.07	0.043553932
					33F	53Y	-0.01	0.346396060
					33I	53Y	-0.01	0.205281201
					33V	53Y	-0.01	0.021764573
					33V	53L	-0.02	0.806900707
					10I	53L	0.12	0.000087432
					10V	53Y	0.11	0.005051584
					10I	53Y	0.03	0.538683078

10	53	0.13	0.000016210	16.1	10V	53L	0.02	0.668270541
					10X	53Y	0	0.004929219
					10R	53Y	-0.01	0.039473361
					10X	53L	-0.01	0.609611712
					10F	53Y	-0.01	0.322029420
					10F	53L	-0.01	0.788884113
					10R	53L	-0.02	0.911095992
33	36	0.13	0.000014359	3.9	33F	36L	0.36	0.000000000
					33I	36I	0.17	0.000000020
					33F	36I	0.02	0.615441641
					33V	36V	-0.01	0.396219469
					33I	36L	-0.01	0.640435023
					33V	36L	-0.01	0.220260270
					33F	36V	-0.02	0.910035279
					33I	36V	-0.02	0.880332720
30	73	-0.13	0.000014830	8.6	33V	36I	-0.05	0.134380149
					30N	73C	-0.04	0.378868819
					30N	73T	-0.04	0.231373407
82	88	-0.15	0.000000658	12.3	30N	73S	-0.1	0.000575094
					82I	88S	0.03	0.884837988
					82F	88S	-0.02	0.926346971
					82F	88D	-0.03	0.527618103
					82I	88D	-0.03	0.706788523
					82T	88S	-0.03	0.632042595
					82T	88D	-0.04	0.280741484
					82A	88S	-0.06	0.068876392
30	46	-0.15	0.000000373	6.8	82A	88D	-0.1	0.000543679
					30N	46V	0.06	0.170276341
					30N	46L	-0.09	0.002018332
20	77	-0.16	0.000000082	7.9	30N	46I	-0.11	0.000319035
					20T	77I	0.01	0.782929011
					20I	77I	-0.05	0.121432555
					20M	77I	-0.09	0.005487785
13	93	-0.16	0.000000041	8.1	20R	77I	-0.13	0.000009963
					13V	93M	-0.03	0.637346573
30	54	-0.17	0.000000007	9.6	13V	93L	-0.16	0.000000067
					30N	54L	-0.01	0.959036607
					30N	54M	-0.03	0.716418311
					30N	54T	-0.04	0.407949117
24	90	-0.19	0.000000000	3.8	30N	54V	-0.15	0.000000141
15	77	-0.19	0.000000000	6.3	24I	90M	-0.19	0.000000000
35	77	-0.20	0.000000000	3.7	15V	77I	-0.18	0.000000000
					35G	77I	-0.01	0.898805737
10	30	-0.20	0.000000000	13.3	35D	77I	-0.18	0.000000000
					10F	30N	0.05	0.138853091
					10X	30N	0.01	0.862650248
					10R	30N	-0.03	0.555981128
					10V	30N	-0.05	0.101904616
30	90	-0.21	0.000000000	7.9	10I	30N	-0.18	0.000000000
30	82	-0.22	0.000000000	8.8	30N	90M	-0.2	0.000000000
					30N	82I	-0.04	0.352237416
					30N	82F	-0.05	0.216192450

30	62	-0.22	0.000000000	0.0	30N	82T	-0.06	0.071732233
					30N	82A	-0.17	0.000000002
63	64	-0.22	0.000000000	1.3	63Q	64V	0.17	0.000000022
					63V	64M	0.09	0.132686112
					63S	64M	0.07	0.089104718
					63H	64M	0.06	0.450009014
					63T	64M	0.05	0.535458098
					63T	64L	0.04	0.605043607
					63S	64V	0.03	0.348327528
					63A	64M	0.03	0.900307090
					63P	64L	0.03	0.541697525
					63S	64L	0.02	0.977086821
					63V	64V	0.02	0.905071782
					63C	64V	0.02	0.654981698
					63T	64V	0.02	0.654981698
					63C	64L	-0.01	0.605043607
					63C	64M	-0.01	0.535458098
					63V	64L	-0.01	0.170813474
					63H	64L	-0.01	0.516039268
					63Q	64M	-0.02	0.658478626
					63H	64V	-0.02	0.683881272
					63Q	64L	-0.02	0.731697459
63A	64L	-0.02	0.977086821					
63P	64M	-0.03	0.380222726					
63A	64V	-0.06	0.045153406					
63P	64V	-0.25	0.000000000					
64	71	-0.23	0.000000000	2.9	64M	71V	0.01	0.857114036
					64L	71V	0	0.872461760
					64L	71T	-0.01	0.934837474
					64L	71I	-0.01	0.546963796
					64M	71I	-0.01	0.479589262
					64V	71I	-0.02	0.605905598
					64M	71T	-0.04	0.420863951
					64V	71T	-0.08	0.005281962
64V	71V	-0.18	0.000000001					
36	77	-0.34	0.000000000	3.4	36V	77I	-0.01	0.827553454
					36L	77I	-0.05	0.149527184
					36I	77I	-0.31	0.000000000